Making music out of architecture and from-architecture-music-an oddyssey

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From Architecture: Music: An Odyssey

Introduction

The odyssey started from the root of teaching architecture, engineering, and construction, whilst occasionally wondering if there was any linkage between architecture and music, whether in fact music could be made from architecture. One memorable such pondering was when David Chipperfield won the RIBA Sterling Prize for Architecture in 2007 with his Museum of Modern Literature in Marbach Am Neckar, Germany (2019), an image of which is shown below.

photograph 1 Museum of Modern Literature, Marbach Am Neckar, David Chipperfield, Architects, 2007 RIBA Sterling Prize Winner

At the time, the arrangement of the columns struck me as highly musical with a repetitive frequency that could generate sound if played like a harp or other percussive instrument. Now, having completed a masters in music at Canterbury Christchurch, it is time to come full circle and put into practice this idea. Charles Jencks, in his article in the *Architectural Review* (2013), described the same sort of

phenomenon in connection with the perspective view of classical columniation such as of The Temple of Concord, Agrigento, Sicily, 450 BC, shown below.

photograph 2 Temple of Concord, Agrigento, Sicily, 450 BC

Jencks described the receding side columns, when viewed in real space, as architecture generally is (generally, because virtual reality can offer new possibilities) as of ‘a faster beat’ than of the front columns which are more straight on to the viewer. This is precisely what is happening with the plain columns as above. As Jencks points out, other things are happening with the classical columns, such as the Pythagorean proportioning—also, there will be the classical decorations, that could be generally applied, such as flutings and the mouldings of the orders, such as Ionic, Doric, Corinthian, Etruscan and so on. The plain columns of the modern day museum are as modern is to ancient classical architecture. There is probably a parallel in music too, plain unadorned versus decorated ornate.

Having carried out some background research and from discussion it seems that the best place to start from here is to safely assume that the answer to the questions about the linkages between architecture and music are in the affirmative. On the whole the relationship is of architecture to music, rather than the other way around. Although, there is some evidence of music having an effect upon architecture. A notable example is of the 'radical' (Hasan, 2019) architect Peter Cook, a member of the Archigram group, who, according to Alessandra Capanna (2009), an Italian lecturer in architecture, designed a city, Bloch City, directly transferred from the violin concerto score of Ernest Bloch.

Capanna interprets, as was plainly intended by Peter cook, the noteheads as tower blocks aligned as notes in a chord, a system of three staves with one crossing transversely going to who knows where allowing for open-endedness, representing near unending roadways, the '*continuous*', counterpoising discontinuities, discrete entities, as common language, nexus, for music and architecture which when viewed in 3D create a polyphonic structure and vertical harmony, melodic, even 'verbal' 'sound expression' in 'space and time'. Bar lines are created by bridges and the 'beats' within the bars are related to the whole, 'the formal urban unit – the neighbourhood'. Capanna reads much into the details in a linguistic fashion, interpreting text in the manner of structuralists; the score is an 'image' translated into architecture; the signifiers are metaphors and symbols to be read sociologically. It is a utopian vision, an 'ideal'. This manner of interpretation is probably correct since the Archigram group were concerned with challenging modernism via a whole range of mechanisms (Hasan, 2019). It certainly provides a vivid illustration of music as the main driver for creating architecture.

Whilst Peter Cook's foray into the merging of music and architecture remains in the realm of fantasy, Capanna goes on to describe the real project of the architect Steven Holl's Stretto House actually built in Texas, USA, based upon Béla Bártok's *Music for String Instruments, Percussion and Celesta* (1937). The musical allusions are patently fully integrated into the architectural scheme. In fact Holl faithfully follows Bártok's form and musical gestures as a template for his architectural design, as four movements signifying four buildings, alternating heavy and light contrast meaning heavy walls and lightweight roof, an inversion leading to overhead rooming, temporal and spatial mirroring, orchestral thickening with building elements thickened, note distances and geometric distances, spectral use of Fibonacci numbers, dynamics, texture. It seems that Holl fully understood Bártok's music and totally embedded it in his architecture.

So, whilst we are accepting the thesis that music can be made from architecture, as we have seen from the two examples above, it can work the other way around and one can draw lessons from this as hints for how to reverse this and interpret architecture when making one's own music.

Before moving on, there is just one other example of the link between music and architecture that, for me, stands out and that is when Katrina Burton, a lecturer at Napier university, Edinburgh, went to New York soon after the 9/11 disaster and wanted to let off a noise bomb of white noise in the lobby of the Chrysler building, had obviously to get permission, got it, and let it off, then retrieved the sound signature of the building in the form of intelligible waves at inherent frequencies, then used those frequencies in her composition. This surely is getting pretty close to connecting with the actual DNA of architecture, of a specific building. The principle here in Burton's words is: 'as white noise contains all possible pitches when you

record its reverberation you capture the principal pitch resonances of the space' (2017).

The forgoing are just some privileged selections from researches that support the connection between music and architecture. There are many others, which also suggest methodologies of means of making music to interpret architecture. These will be culled and distilled in the intended exposition of my own odyssey in this vast land which opens up a vista to include soft topics connected to architecture: sociology, urbanism, politics, sustainability, sound art, objects of various kinds (agreed in discussion as designed entities in the same way that buildings or components of buildings are), art and objects of art (in the same way that, nominally, plain objects are, as well as the art constituent of architecture, in a way similar to other well-known such combinations, of cooking, economics and in my field of construction, estimating).

Thus I am starting from the base of the thesis as proved or at least accepted. When I mentioned my quest to find the relationship between music and architecture on a course designed to encourage contemporary composition and playing in early 2019 the leader of the course said words to the effect: Oh yes, this is well-known, including from early times. He was right—and he was probably referring to the fifteenth century Guillaume du Fay who wrote for the dedicatory service of the church of Brunelleschi's dome fame. I had set out to examine not only a wide sampling of all facets of architecture, but also all styles and periods. The Renaissance has long held a fascination for me, which may become apparent in some of the music to be looked at. Especially, *A Walk Around Oxford Late at Night* and a personal piece *Pieta*.

I, also, wanted to look at common language, such as the use of words like 'element', 'material', 'texture', 'colour' and so on—the catechism is extensive, but,

this seems widely accepted before one even starts explaining. It seems simply that one needs only to state that it is true.

Next, I wanted to look at some examples of acoustics, which for constructors is part of the curriculum, to be able to work out suitable reverberation times for lecture rooms and concert halls. The relevance here is how architecture, the built environment can influence, even determine aspects of sound and music making. So, there is an interconnection here. This may well be worth examining as a separate topic of research. For innovators like Stockhausen, Nono and many modern performance art composers and players this can become essential where the sound system becomes part of both the philosophy and nature of music making. Not only can it involve the primary design of architectural space configuration, choice of reflective and attenuative materials, building in of sound systems, but it can be so much more, as became evident in an interview with Matt Lewis (2018), a sound art composer at the Royal College of Art. Incidentally, we concurred on sustainability as being a significant progenitor of modern music, where he found electronic music to be almost more natural than analogic sound. We also agreed on the importance of materials, per se, as of Petra Lange-Berndt (2015). I realised that I too aught to experiment with electronic music.

As regards architecture and the acoustic environment, I intended to highlight the relative importance of the design of concert venues and ecclesiastical buildings by showing up examples where this had gone wrong, also success stories, but the point is already made. As regards the thesis about the connection between architecture and music this is apparent. Being a positivist, it is simply better to concentrate upon the good points of examples. So, despite maybe some problems that can be typical of many building projects, to do with politics, time over-runs, costs, rectifying defects

and maybe some tweaking to do with sound engineering and the inevitable subjective discussion about the aesthetics and functionality of designs which sometimes needs time to mature for appreciation, all of these projects are amazing spaces for making music in the context of modern architecture, accessibility and a touch or two of theatricality: Raphael Viñoly's Kimmel Centre, Philadelphia (Raphael Viñoly Architects, 2019), Frank Gehry's Walt Disney Concert Hall, Los Angeles, California (Jones, 2013) and ZHA's forthcoming Sverdlovsk Philharmonic Concert Hall, Yekaterinburg, Russia (Ravenscroft, 2018). Then selecting representatives for the ecclesiastical category, Chartres cathedral (Anon, 2015-2018) with all of its mystique, Gothic-ness and numerology and perhaps in a similar, yet more Renaissance holistic, way, the churches of Rome as in Andrew Norman's *The Companion Guide to Rome* (2010) with all its personal interest in proportions, patterns, humans and saints.

When I admit that it is as if it is axiomatic that architecture is inimically connected to music, I confess to starting out with this view: it just needed to be proved. Then as possibly often the case with research I went through a period of doubt, thinking that it was not at all possible to be proven. Partly, with this in mind, also wanting to justify direct inspiration as a means of making music (which incidentally is now simply accepted as Steven Daverson mentioned composing 'intuitively' for a short section for bass oboe in his PhD thesis, 2014, p. 112) and for reasons of thinking about the universe, I came up with a Total Field Theory (TFT). This was pointed out to be a theory of everything, which permitted anything. It was immediately clear as too wide a remit for making interesting and specific music. It *could* produce such, but the cold reality is that if the remit for research is left too wide, in fact infinitely wide, this tends not to lead to interesting and productive research. So, in a way, this theory has become 'ditched'. However, I still believe in its

efficacy and there may still be trace elements that bleed across the vast open spaces between the hinterland to where it has been banished and here to this account of music making.

So, we start to come to the substance of this research, the compositions, which tend to lead from one to another, adding and collecting moss as they roll along. From the position of not thinking that anything could be proven or used in a credible way as a means of translating from architecture into music, a happy accident occurred.

There remains one question yet to pose before embarking on the next stage: it was, quite rightly, put to me that I should come up with something new, something to add to the canon of music, that pushes musical research further forward to some extent. This immediately poses a problem in that there is an admitted leaning towards musical genres of bygone ages, which does not sit well with the modernism or post modernism of the current age. It could be argued that post modernism, as it were, permits a return to historical references. As long as the musical gestures come from the heart, one's own mind, then in such cases, the worst case criticism of plagiarism does not apply; nor pastiche, because the creative impulse is original, of the moment; quotation has often been a permissible mode of composing, yet for me where there are cognisant *en passant* references to other composers' music it is either coincidental, laudatory, or a device that anyway frequently then dissolves into a personal statement. These all seem to be acceptable states to encounter during the compositional route.

It is not the intention here to develop this argument any further. For this it would be necessary to take on defining commentators such as Theodor Adorno, Iannis Xenakis, Mathias Spahlinger and Helmut Lachenmann. The problem, if there is one, is more to do with myself, so, this then becomes part of the research quest: to find methodologies to stimulate ways of thinking other than in tonal formalistic structures.

These are pretty much researched: to do with mathematical stratagems, use of computers, algorithms, electronica including degrees of freedom in-built to programs that create elements of surprise in composition and performance, controlled, or uncontrolled, chaos, randomness, indeterminacy. There are other stratagems that can be used, as for instance following rules or parameters set by translating architecture where form, materials, gestures are suggested by an agency outside, beyond oneself. This can be an effective method. Other pragmatic problems can simply be access to instruments and players such as Rebecca Saunders admits to experiencing before indulging on a new compositional path (Mohr-Pietsch, 2015).

This, again, then becomes a personal mission. In a way, it becomes the lonely composer as envisaged by Adorno, who needs to come out into the world and connect with people to find the means to experiment. This is a definite aspect of this research for me that can provide a key to unlocking a doorway to open up the possibilities of exciting new techniques and ways of creating music and writing it. Banal as this sounds at an advanced level of research, it brings the theoretical to the level of interpersonal skills that are needed to interface with modern method of composition, hear the sounds possible, ask players to experiment this way and that way, discuss, interact, capture, notate by whatever means seems reasonable, in order to make a quantum step forward.

To be fair to myself, there are, I think, several instances in my music of modernism; then, I think, that there can also be a case for not exiling tonality and all that goes with it, formal structure, albeit as broken down perhaps in a modernistic deconstructed, or partially deconstructed way, cadences and harmony. The parallel in architecture can also be true. Whilst Zaha Hadid's building can break all sorts of

preceding rules, there nonetheless is still a recognisable amount of elements, such as walls, windows, staircases.

So, this then is part of the problem to be worked through and solved for this research: the degree to which tonality can be acceptable in a modern idiom. Then where personal advancement of the cause of music is needed, this then needs to be a personal statement that is recognisably individual. It need not necessarily be music that is universally liked, or even liked by some—although that would be nice—it needs to somehow have some component of something new to say. What that will be might be hard to say. It may need others to judge. The linear pathway taken with the pieces about to be described will undoubtedly include some of this dialectic struggle and hopefully there will be moments at least of pleasure given, perhaps the odd little diamond buried in the rubble. This can be weighed up as we move along and at the end.

Happy Accident

So, now we are back to the happy accident. This came in the form of a paper via Researchgate, where initially I was solicited for helpful comments with the constructional background in mind. Amatalraof, Ismail and Dilshan were in the throes of putting together a paper on Zaha Hadid (2016). I had long been an admirer of her both as a person and architect. In their paper they analysed her life's work which they categorised into five genotypes: suprematist, fluid, topographical, organic and parametric. They assigned dates and percentage weightings to these periods, whilst stating that there were overlaps, projected references and constant themes. This was just what I needed and it all came together in an integrated way. I was at the point where I could see no meaningful way of literally translating architecture with any

conviction. I could pretend, but naturally it had to be honest. I was too close to the problem.

By presenting me with this beautifully analysed architecture of Zaha Hadid I was able to connect in an honest way with her architecture, by writing about her, in the five modalities. In this removed way I reasoned that I would be actually reflecting her architecture, as well as providing commentary about her, in my music. Then to supplement this position, it turns out that a first and lasting influence upon her, together with those with whom she studied at the AA (Architectural Association), Bernard Tschumi and Rem Koolhaas, was Kazimir Malevich (1878-1935), a pioneer of the Suprematist school (MoMA, 2019). This, ironically, mirrored my position. My interpretation of Malevich is that, starting from his love of flying aeroplanes and seeing the patterns below, he came at his viewpoint from an objective stance, yet at the same time he wanted to express himself personally in detailed close-up view, even passionately.

So, in my opinion he ended up with an objective/ subjective viewpoint at one and the same time—hence, my description of this as ironic. It could be called contradictory, or dialectic, but there is the irony that mirrored my own position too. So, not only was I able to get a window into interpreting architecture, but it was to be a major characteristic of Zaha Hadid that I was going to be able to express in my music. To further the ironic strand, where one would think that a personalised passionate approach would lead to extremely subjective humanistic topic areas, instead Malevich produced rather plain almost anodyne, yet beautiful, geometric patterns. This may partly be explained by the Russian political climate at that time where artists sometimes resorted to expressing their real feelings in code for fear of being called formalist with consequential oppression. There are various claims that he

led artistic movements such as Abstract Art, Constructivism, Minimalism and other avant-garde movements. He was definitely a pathfinder and one of a singularly self-determined, perhaps self-contained character. He does not appear to be a showman, perhaps with that unmistakable and inescapable Russian characteristic of moral seriousness, yet with some lighter side, even playfulness. So, whilst another interpretation of the Suprematist label could imply a fascistic self-belief in personal supremacy, this would seem to be a misinterpretation; it needs to be more nuanced; yet there is the element of thinking that one is the best person in the world. One can see how this would influence Zaha Hadid; it captures her personality to a large extent.

This Suprematist aspect dominated my musical rendition of Zaha Hadid. There were the other elements in the music too: the other four genotypes: topology, fluidity, organicism and parametricism, the latter of which has been promulgated by Patrick Schumacher, her successor at ZHA when she died in 2016. Amatalraof et al's paper also captured other aspects of her personality complementing the characteristic elicited so far. These are her almost dangerous sense of fun, her love of experimentation, her wish to keep up with latest innovations in technology and what was happening in society.

This then is the background to *The Life of Zaha Hadid*, 2018. One other major factor played a part in this composition and that is the wish to experiment with electronics as a medium for making music and now was the time to try.

Electronica

I started by learning how to use Pure Data, the freeware similar to MAX/MSP. I followed Moore's (2018) online tutorials and got to the point of having made the first part of a synthesizer (input side), when I felt I had learnt enough to not need to follow how to make the second part (output side) since I felt that there would be sufficient programs to use already made. During an early part of the tutorials a simple

means of making synthesized wave sounds was formed. I had a feeling that this could be useful. A copy of this primitive synthesizer is shown *figure 1*. I kept this because at the time, whilst we were going on to make a more complicated synthesizer, it struck me as how clean were the raw sounds of the waves made, all from the incipient sine wave. I was going to use all of the wave forms, sine, saw tooth, square and triangle, as an inserted section in *The Life of Zaha Hadid*. The triangular wave was especially relevant since Malevich was so concerned with triangles amongst other geometric shapes.

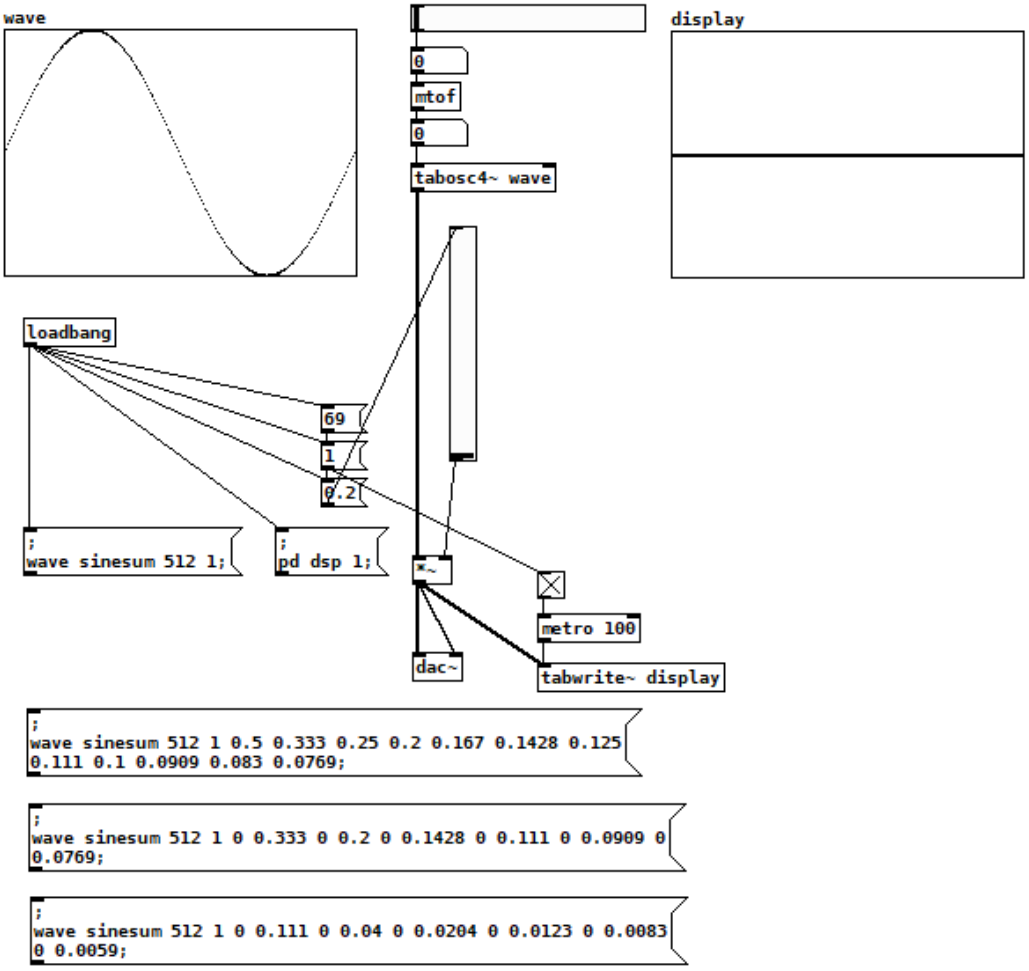


fig 1: Moore Synthesizer, Pure Data, Grant Gover, 2018

Time shift: world wide web

Then started the quest to find which already-made digital software programming tool to use. There are those who have proved that there is no difference to the sound produced by different DAWs (Digital Audio Workstations). Chris Lucas's of *3 Sigma Audio* (2016) is one such. He compared Cubase, Pro Tools, FL Studio, Logic, Reaper, Audacity and Studio One. By flipping the phase of the comparator, Cubase, when he played the others in turn together, without flipping their phases, no sound ensued, because they exactly cancelled eachother, proving that the mix buses for each DAW did the same job. As he explained they were just adding digital sampled signals which is simply a numbers based operation. The only differences would be when recording via the interface equipment, not the DAW itself, and within the DAWs, the add-ons, the compressors and such like.

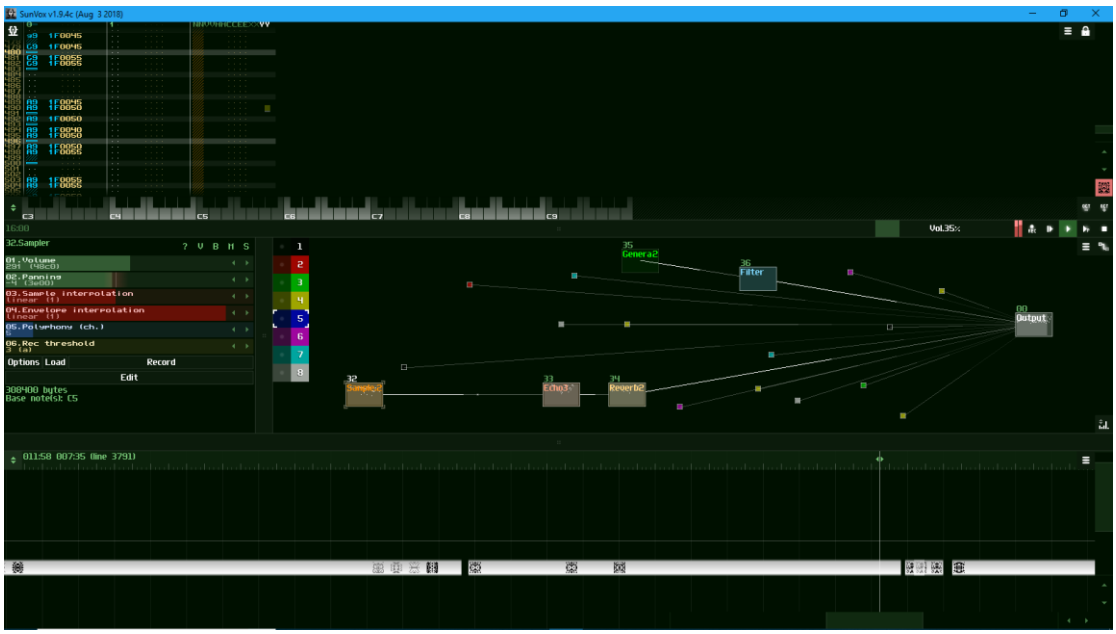
Another factor is cost. Having used FL Studio mobile, costing in the region of £10, for my very first foray into electronic music, which was used for an art exhibition—leading to another commission for another art exhibition, then my own art exhibit coupled with a mix of Beluga whale noise using FL Studio whilst it was under free use—the FL Studio version for PC then ceased. This was to cost in the region of £350 to carry on, so was discontinued. I started to learn how to use Reaper, but whilst it is advertised as free, in fact if one is to use it honestly it still costs $60 after 60 days free use. Pro Tools is used by many advanced studio engineers and probably couples well with other electronic interfaces but again is costly at about $700. I have had the opportunity to try out the educationally supplied free version of Logic 10 and other DAWs. I even bought a range of Native Instruments applications including for simulated singing. In order to obtain any even semi acceptable singing result one needs to invest in the best money can buy and in order to fully utilise Native Instruments it seems that one needs to constantly invest in add-ons, then, with

these, the types of sounds aimed at, are probably techno groove trance type heavily beat orientated music, and heavy on the bass, which is fine, but when one wants a clean modernistic classical sound this is not always appropriate. Supercollider is free and will be worth experimenting further. This seems initially time consuming in order to fully master the coded aspect necessary to obtain the most out of it, although one could use other peoples' codes and adapt them. To a certain extent whatever programme one uses there will always be an aspect of using someone else's coding. This is part of the modern great collaboration; the egalitarian property of the internet where new possibilities and cultural groups are formed.

I then came upon SunVox, a tracker yet with some characteristics of a DAW, as invented by Alexander Zolotov. Quite simply the sound seemed, in ordinary stereo, almost as full as 5.1, with great bass, that suited the fundamental aspects of Hadid and Malevich. Once read through and watched online tutorials and accepted the hexadecimal system of entering, in effect, simple coding, according to a given menu, then the experience and final sound outcome suited what I was looking for: electronically driven, and able to produce a sound that was constructed in a different way to normal through composing. Morgan Ross expressed the benefits as outweighing the disbenefits in his review (2015). He extolls the virtues of using this software during performances. For me this provided the sound of a recorded performance not requiring the need of other performers. I utilised two main methods of playing input, apart from the coding method. Firstly, near the beginning using laptop keys, then towards the end, as midi input played on a Yamaha 142 keyboard. On both occasions I played roughly through the sound and pattern of notes that I had in mind, then quickly jumped straight into recording them so as to produce a fresh improvised sound and towards the end even a hint of jazz which seems to evoke the

quirky fun loving side of Hadid. There was an element that I wanted as countering homogenous timing and manicured sanitised music, so any hesitations, clicks and asynchronous timing was for me an attractive aspect. This was on top of unusual sounds that I was able to achieve. Where drum beats sounded I deliberately made them sound off the beat. The twofold aim here is to experiment with new ways, for me, of making music, whilst, at the same time, giving voice to a personalised interpretation of Zaha Hadid's creativity as encapsulated by Amatalraof et al.

As regards the unusual sounds, having seen an online video that claimed to use the pixels from images as drivers for sampled sound in SunVox, I could hardly believe the sound that ensued when I inserted a Malevich image together with its side attribution logo to provide what sounds like an extreme overdriven guitar. This is unmistakable starting at line 3315, as shown in screenshot #3 and *table 1* below. Another point that I was particularly pleased with was the volume level, where speakers vibrate. This extremity seemed to speak so much of the extreme architecture of Hadid and the Suprematism of Malevich.



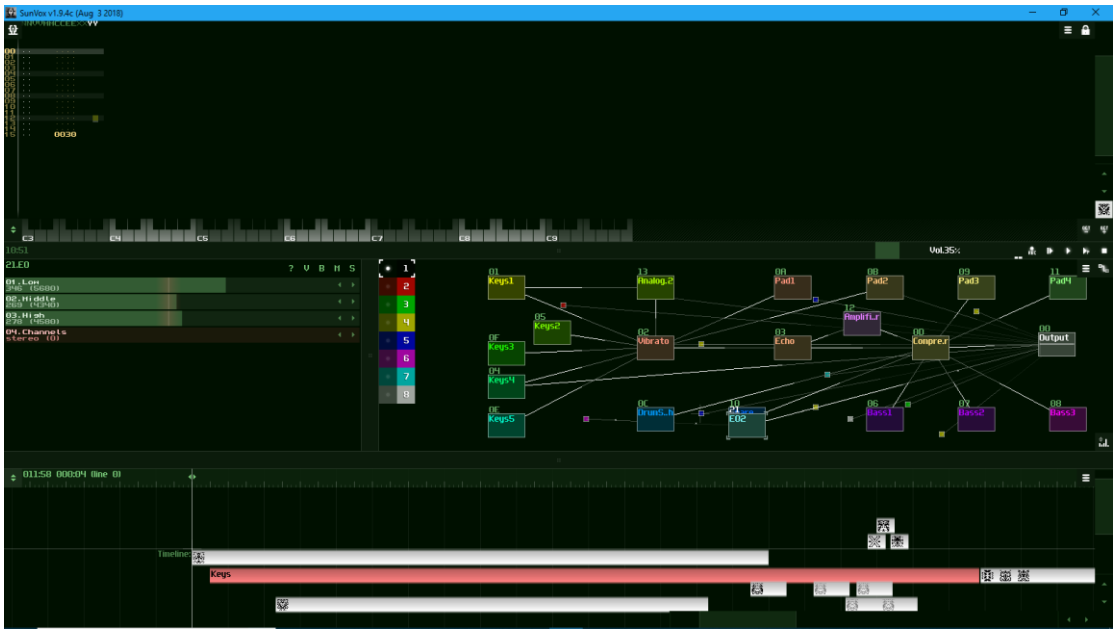
#3 Malevich sample with pattern, parameter controller, modules and timeline areas

Line	Time (m:s)	Occurrence & Sample type	Import for Zaha Hadid	Layer & Screenshot
0	0:00	Start		1 & #1
32	0:04	Signature low bass modulates into 2 other bass sounds; development	ZH breaks onto scene	
148	0:18	New sample exploring electronic sound especially in low frequency; imported Moore synth as *fig 1* of sine, saw tooth, square and triangular waves; motor bike idling sound	Starts showing Suprematism; geometry	
233		Mid sound, semi soft, long slow, melodic	Undulating sounds = fluid, organic & some topographical	
332		Higher frequency quicker over long slow	Overlap of Amatalraof et al 5 tropes	By line 600 all 1st 4 layers
916	1:50	End of Moore sample; short silence		
992	1:59	Busy sound plus reverb; 3 high then lower pitched sounds in antiphon	Gravitas of ZH	
1396	2:48	Short silence		
1400				
1463		2 part flat line sound	ZH overcoming difficulties and precursor of death in 2016	
1488	2:55	Electronic busy sound, fun, inventive	ZHs irrepressibility	
1572		Some distortion introduced	ZHs unusual architecture	
1668		Ending in reminder of flat lining; then short silence		
1678		Kazimir Malevich section (oral), out of phase percussive sounds, echoey sounds like 1st soft sounds, some low, tinkling & other odd sounds	Suprematism with softness	5 & 6
2248		Different electronic syncopated sounds		7
2336		Violin sample broken		

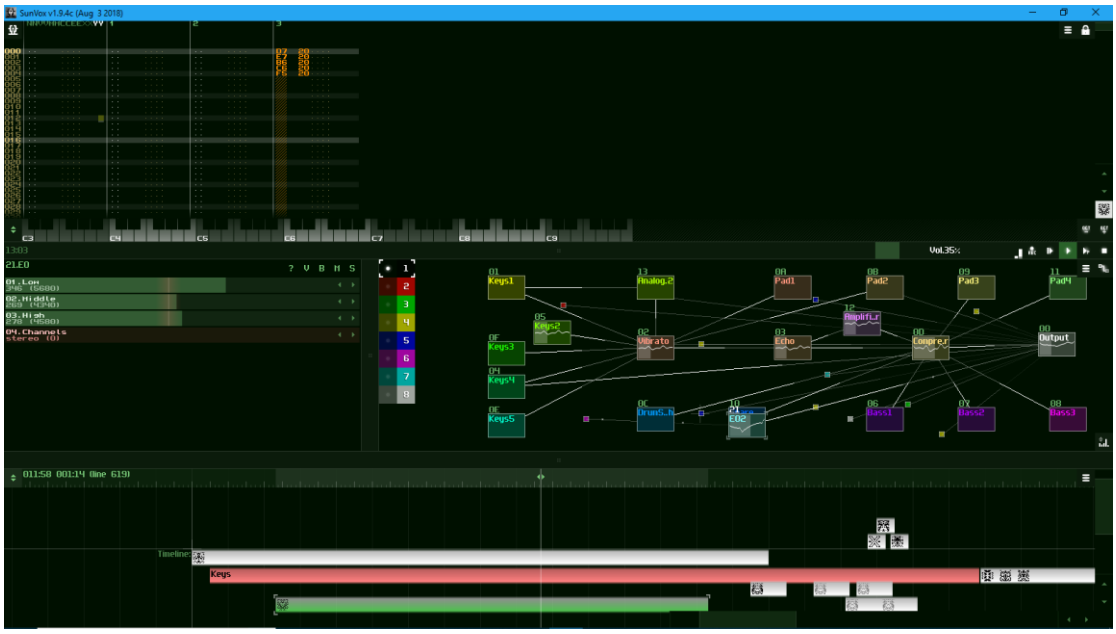
2920		Flatline		
2958		Low sound	Dramatic signature	
2984		Other low sound	ZH signature	
3048		Silence but reverb carries over		
3060	6:07	Violin scale in G full not broken; 'engine' sound underneath like *Study I Events* bb. 26 & 31, also Dadaist; fluttery 'helicopter' sound	ZH fluid, organic, experimental	8
3256		Silence		
3315	6:38	Malevich sample; distortion	Suprematism	5
3836		Silence		
3905		3 signature demarcators; silence	ZH signatures	
3820	7:50	Electronic 'star sounds', gentle, syncopated	ZH soft fun playful idealistic side	5
4432		Group of 3 demarcators		
4500		Small silence, then 2nd part of 'str sounds'; high; gentle sound at 5528; return to reverb sound with clear notes over; slight jazzy feel		5
5968		Signature low end–gentle		
5983	11:58	End		

table 1: Zaha Hadid, SunVox scheme key points, Grant Gover, 2018; violin sample from *freesound.org* and Malevich image from *kazimir-malevich.org*

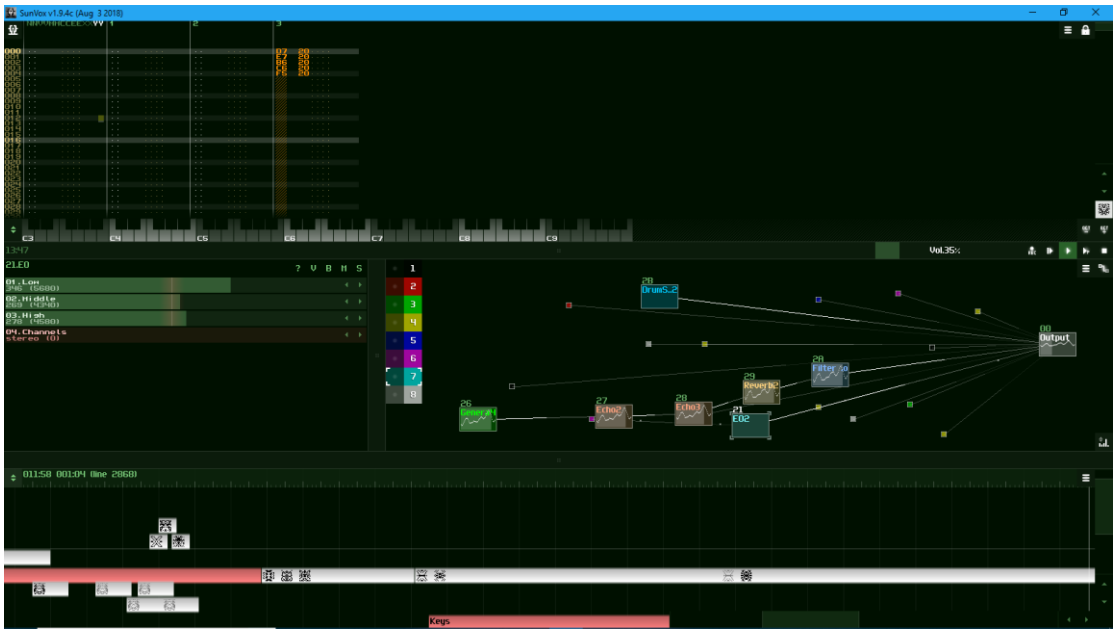
The remaining screenshots taken during the play, together with the above table, provide in fact the closest obtainable to a score of *The Life of Zaha Hadid*.



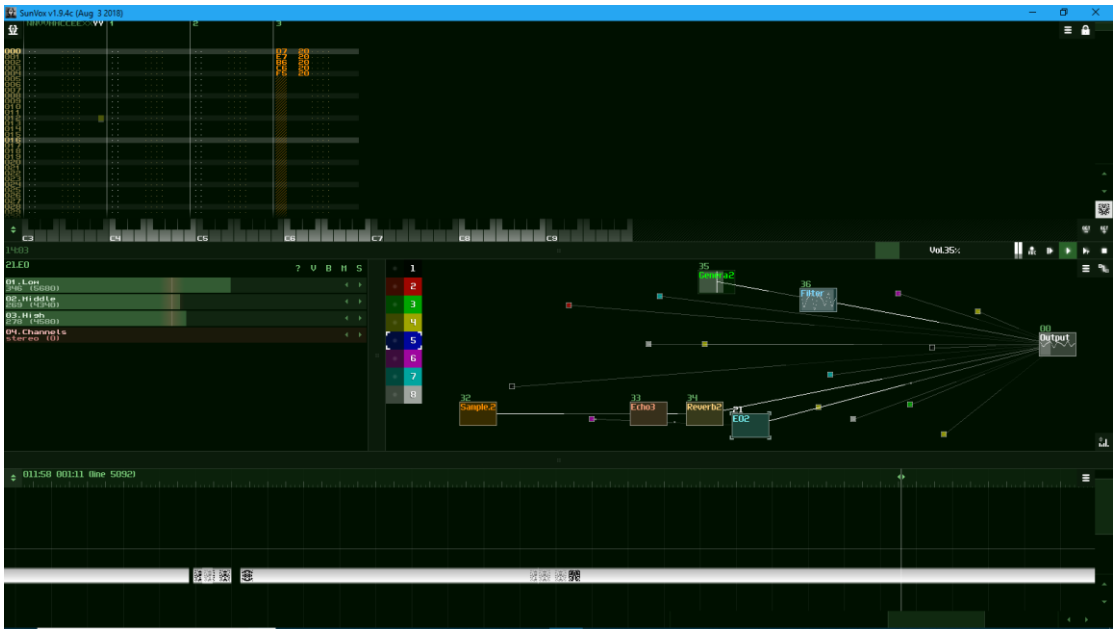
#1 0 start



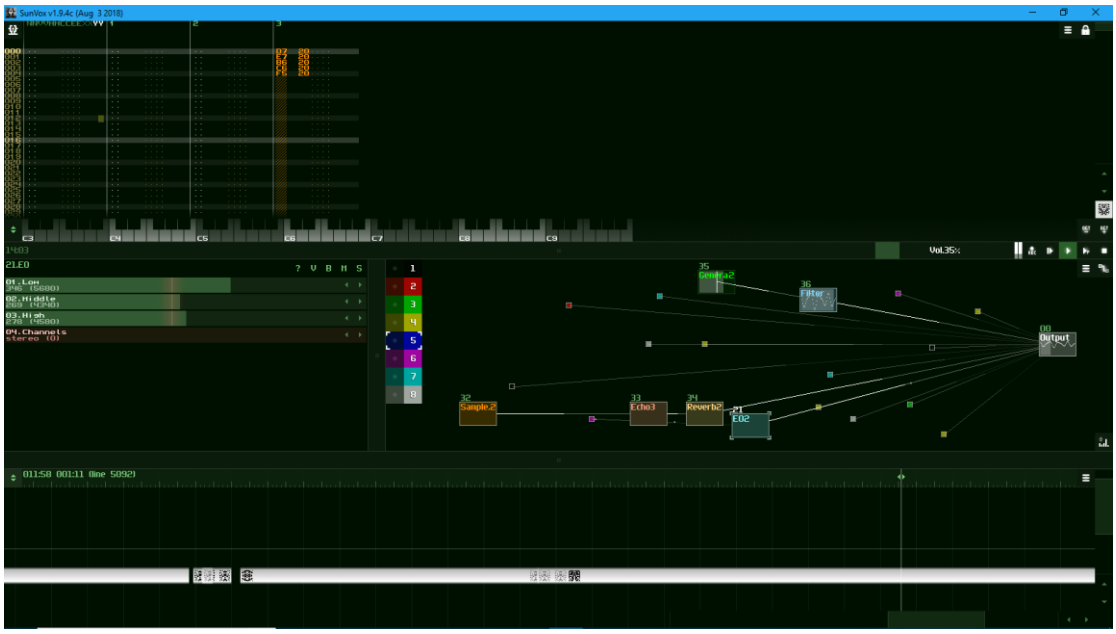
#2 619 Moore synth wave sounds



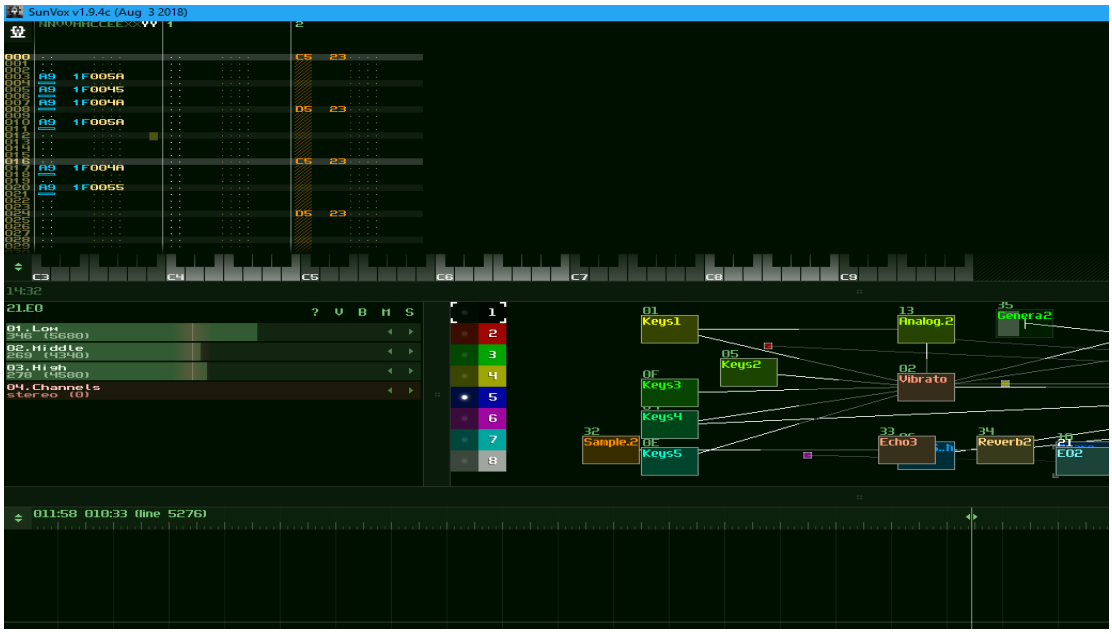
#4 2198 Kazimir Malevich



#5 5092 Star Sounds



#6 all 8 layers



#7 track coding (top left)

In the table there is a reference to *Study I Events* bars 26 and 31, as *figure 2*.

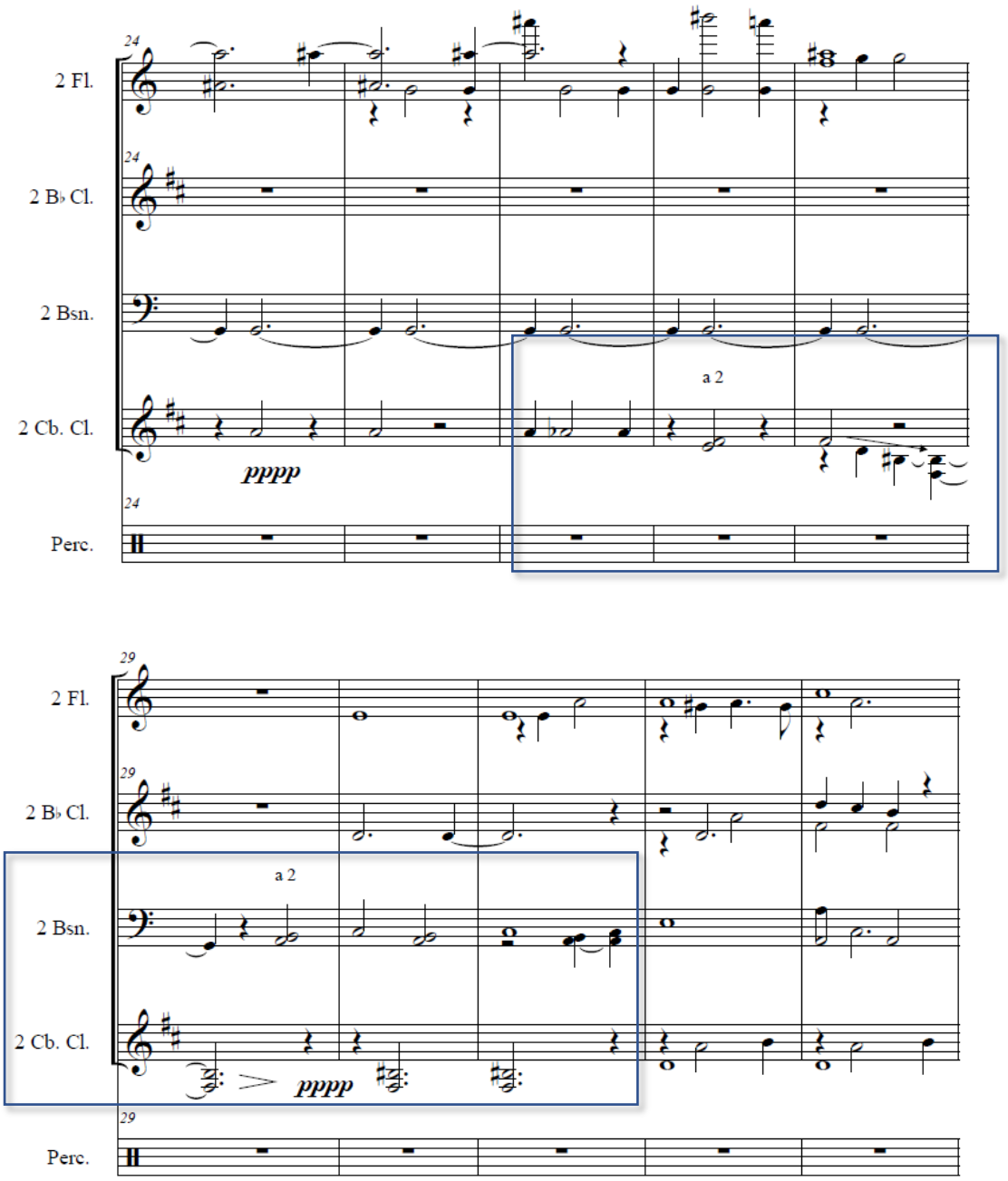


fig 2: Study I Events, Grant Gover, 2019, bars 26-31 highlighted as 'engine sound'

Certain characteristic sounds have emerged during the quest to find expressive new ways of evoking architecture. This led to widening the concept of architecture to encompass objects, art and even events. The sound obtained in those bars struck me as sounding like the engine room of a ship and it is this sound which

has carried on in my memory whilst searching for appropriate sounds for the *Zaha Hadid* piece. The continuity of memory in this way is interesting and worth exploring further, but at the risk of delving down a path that could lead to extensive research I will leave it as something possibly related to Marcel Proust's master work *À La Recherche du Temps Perdu*, also, without entering into great explanation, my theory which I am leaving aside, the TFT, Total Field Theory.

Other recurring themes are a fascination with the interplay between tonality and atonality, such as in the largely tonal, deliberately rambling and somewhat complex *A Walk Around Oxford late at Night* (the first few bars of which is shown in *figure 3*) evoking the cacophony of architectural styles in Hawksmoor and Gibbs's Radcliffe Camera[1].

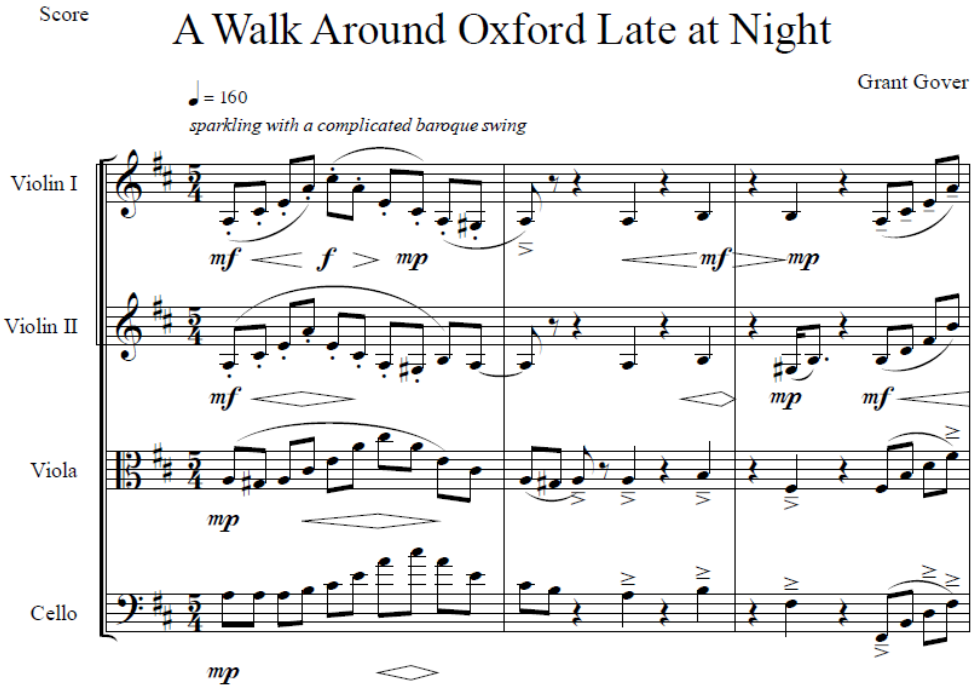


fig 3: A Walk Around Oxford Late at Night, Grant Gover, 2019

For me a lasting strain of romanticism and love of the baroque shines through in various pieces. I use this to juxtapose against modernistic idioms, rather like the

[1] Viewable via: https://www.dreamstime.com/photos-images/radcliffe-camera.html.

architecture in London of the St Paul's cathedral and other ancient architecture as surrounded by the sparkling modern edifices often to do with organisational power and status, yet scintillating in their daring. The resonance with J.S. Bach in the three organ-like sounding antiphonal notes at the end of the section lines 992-1396 to me offer just one of these juxtapositions. All the gravity entailed in those notes after all the weirdness of the musical sounds that have preceded, to me, highlight the mirroring juxtaposition in Zaha Hadid's life and work, the enormity of her personality and pioneering architecture as against the setbacks, as for instance winning the Cardiff Bay Opera House competition and being turned down possibly because she was female and Iranian born (Rowland, 2013), then turning that to triumph in using that design for the Chinese Guangzhou Opera House. Similarly, being initially turned down due to cost for the 2012 Olympics Aquatics Centre, yet, in the end when the committee in charge wanted a flagship enterprise they turned to Zaha Hadid and accepted her Aquatics Centre, which proved to be a significant emblem of those Olympics. The romanticism and tonality alluded to can readily be seen interspersed through the Zaha Hadid piece, especially in the upper register themes at the beginning and end, even in the distorted Malevich image sampled section. There is constantly an oscillation between the two, tonality and dissonance, or atonality, also, formal structure and break-down of structure. This is shown in buildings like Zaha Hadid's MAXXI Building (Slessor, 2010), shown below.

photograph 3: *AJ* 30 September 2010

Demonstrated is the sheer effrontery of projecting a part of a building in a way for its time that structural engineers would find beyond logicality. This set against the sharp pointed curving wall, the almost mundane glazed wall sections (yet, in fact, with some modern Italianate *elan*), with spindly columns creating subsets of musical notes begging to be plucked harp-like. What courage, what creative imagination! If the piece can do some justice to the dynamic forces raging through her veins, then it is successful.

The Folkestone Bandstand

Where *The Life of Zaha Hadid* was a way in to composing music in respect of architecture via the expedient of a device, of a removed third party's objective view of the architecture of a person, whom I knew about, had taught about and revered, I was able to envisage the architecture analysed and categorised by Amatalraof et al via a mechanism similar to Malevich's artistic method. This enabled me to get closer to the subject matter and describe it, with empathy, feeling, in an abstract and yet expressive way. The relatively novel, for me, use of an electronic medium, the samples, modules

and controlling parameters, helped and guided to produce music in a new form. To a certain extent a formal structure is evident in *Zaha Hadid*, where each sample, as shown in the timeline, forms a self-contained chunk of music, analogous to conventional episodes, passages or sections and admittedly there was even some classical development as mentioned in the scheme of *table 1*. The interrelationships are, in a way, more cerebral than purely inspired, as influenced by Amatalraof et al's research and the intellectual approach as shown in the scheme of *table 1*, although it is partly fragmented, atomised, which in a sense accords with Zaha Hadid's predominant style of deconstructivism. Here the approach is different.

Having long admired the Folkestone bandstand, as one of two most beautiful edifices in the town, the other being the Chapel library on Grace Hill, especially its façade, it is probably natural that this should occur to me as a topic for writing a piece of music. This was coupled, with a cogent desire to find a means of writing that was in some way determined by mathematics, or computers, or aleatoric process, or some mix of these. The reason for this was to encourage compositional thinking differently from an innate preponderance to tonality, romanticism and the baroque, whilst, at the same time, admitting a love of modernism and post modernism, both in architecture and music. Sometimes, this dichotomy can pose problems, sometimes appearing in my music as a work-in-progress stochastic attempt at a solution. This is not a deleterious thing. It is an honest approach to try to solve some of life's problems, musically. It is non formulaic and shows commitment. This time, though, I was seeking to veer more toward the formulaic.

From the outset of this research I had decided to try to adopt a wide spread of means of composition as well as covering different architectural style periods. Initially, this was to try to prove the case for the linkage between architecture in a

robust spread of data, but since this is now accepted as axiomatic, the tendency to spread has just remained, partly as a self-challenge and out of pure interest.

To a certain extent, I started with a similar dispassionate approach to *Zaha Hadid*, in that the image would be provided by someone else via the internet. It would be removed for forensic examination from a distance. In the end I chose a rather dark image that addressed the subject matter straight on and by having it compartmentalised into shadowy shapes it enabled an analysis similar to Jenck's where the building could be broken up into segments for assigning musical counterparts. Also, as will be seen shortly, it permitted use of clear perspective and orthogonal lines.

The next decision was to use a spreadsheet to analyse data, as I had successfully carried out before for a solo viola piece during the masters programme. Here, some, at least, of the decision making would be determined by artificial means. Even though in many ways human intervention in rule setting, making adjudicatory decisions during the process, selection of material and so forth, are apparent in so-called deterministic, or even outright aleatoric methodologies, there still is evident to the contrary many outcomes that are produced by other than controlling influences of human brain activities. This is the case here.

Before showing the spreadsheet and associated data, a third factor was brought into the determination of some of the musical parameters, possibly just influencing by colour, but still definitely there—and this is the use of some architectural drawing rules. This is plainly intended to respond to the brief of translating architecture into music and it was considered that by utilising actual drawing methods this would assist in providing some measure of faithful architectural representation. Perspective and lineweight hierarchy are just two of these factors employed. They are shown as lines

of perspective, which provide depth of field, as well as actual written instructions as might occur on an architectural drawing. Francis Ching was used as the authority.

To explain the lineweight hierarchy application here, where lines closest to the viewer are drawn as the heaviest, then diminishing in lineweight as the distance recedes, a clear example is as applied to the seven posts represented by arpeggios on the piano and harp. The two closest have the heaviest emphasis of *ff*, the two behind them at *f*, the one behind that at *mf* and the rear two at *mp*. These occur at bars 15, 23, 48, 49, 57, 96 & 97 and 100, working from left (as viewed from the picture viewer) as the whole score is read. Upon checking it has been found that the positions of posts 5 and 6 have swapped as regards dynamics positions, of *mp* and *ff*, respectively, where it should be 5 at *ff* and 6 at *mp*.

Considering that this has only been noticed by this detailed check and that where the music has been played to five different people without adverse comment, this will be treated as an architectural (and contractual) 'honest mistake', where frequently such mistakes are seen as benefits, adding, by chance, an element of betterment. So they will be left as they are. There are two more similar arpeggios near the denouement, at bars 131 and 133. These are unmarked, specifically, and are thus implied at the last marking to be *f*. These two are taken simply as human interpretation of the elements of the bandstand. Upon further checking the following chart of information appeared (*table 2*), where it seems that human decisions have been made in the heat of composing, where the final post position is at bar 131 and the additional one at 133 is a discretionary extra. The scale of information may have a bearing, so that in future a larger scale should be devised and printed out beforehand. However, I personally, do not want to become robotic in following instructions. The human intervention, even mistakes as described above, can almost be courted. John

Ruskin in his *Seven Lamps of Architecture* (1907) would undoubtedly agree. It is the hand of man on ancient cathedrals that make for the character of hewn stone, for instance, as against the machine made insistence upon blemishless similarity. On this last point, it is well known that this is virtually impossible, as statistics applied to mechanised products attest. Not all 2 inch long screws are two inches long even when mass produced under factory conditions.

Posts							
s/sheet	1	2	3	4	5	6	7
Bar nos	18	23	49	57	96	100	131
Dyn intensity	*inter = f*	*inter front = mf*	*rear = mp*	*front = ff*	*front = ff*	*rear = mp*	*inter = f*
actual	15	23	48/9	57	96/7	100	131
Dyn	*f*	*mf*	*mp/ff*	*mp*	*ff*	*f*	*F*
Nexus	A.		B.		C.		D.
	23+14/50		49+42/50		57+28/50		57+47/50
	*22		*5		*37		*37
rounded	30		53		78		92
event	mar trems		cadence		clar trans		pinnacle
Other		39-41	forms sctn				
		%end					
shrubs	Occasional suggestion like architectural drawing pale wash						
persp	Architectural perspectives as F. Ching, lamppost linings up, weather vanes & diagonals. Vanishing points suggest distance to left, height to right and below ground profundity to right. All = depth of field						
turret	Approx. starts b 50, rises to 58, pinnacle, 95, descent to 101						
ornate decs	Top & bottom of canopy base, base of upper canopy, 2 weather vanes & finial to overall top of canopy: colour as F. Ching when apparent, generally represented by trilling woodwind						
base	constant base sound						
abbreviations generally as ismlp.org and % taken as section end							

table 2: key events chart, *Folkestone Bandstand*, Grant Gover, 2019

As noted in the table above the decorative parts are generally produced by the higher register woodwind, the finer the decorative element, the higher the instrument with the piccolos fulfilling the role of delineating the filigree parts. The first four bars are a typical example as a grand intro starting from the left of the image as shown on

the spreadsheet with decorative elements top and bottom of the lower canopy and at the top of the posts.

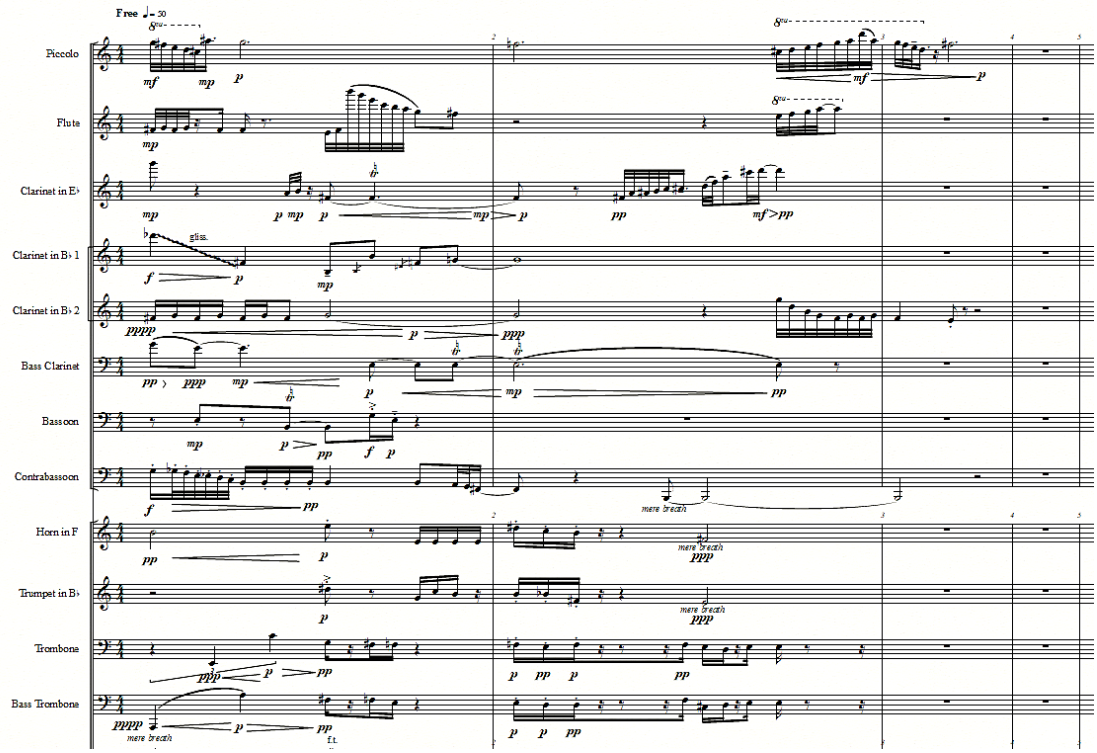


fig 3: *Folkestone Bandstand*, bars 1-4, grand opening, overhanging and post top decorations depicted, Grant Gover, 2019

The clarinet's glissando adds a flourish, whilst also graphically alluding to diagonal and perspective lines; the flute's straight downward run, similarly. In bar 4 the quiet underlying bass sound of the bandstand's plinth emerges, which stays virtually all the way through. Other woodwind flourishes representing the decorations are at bars 25-26:

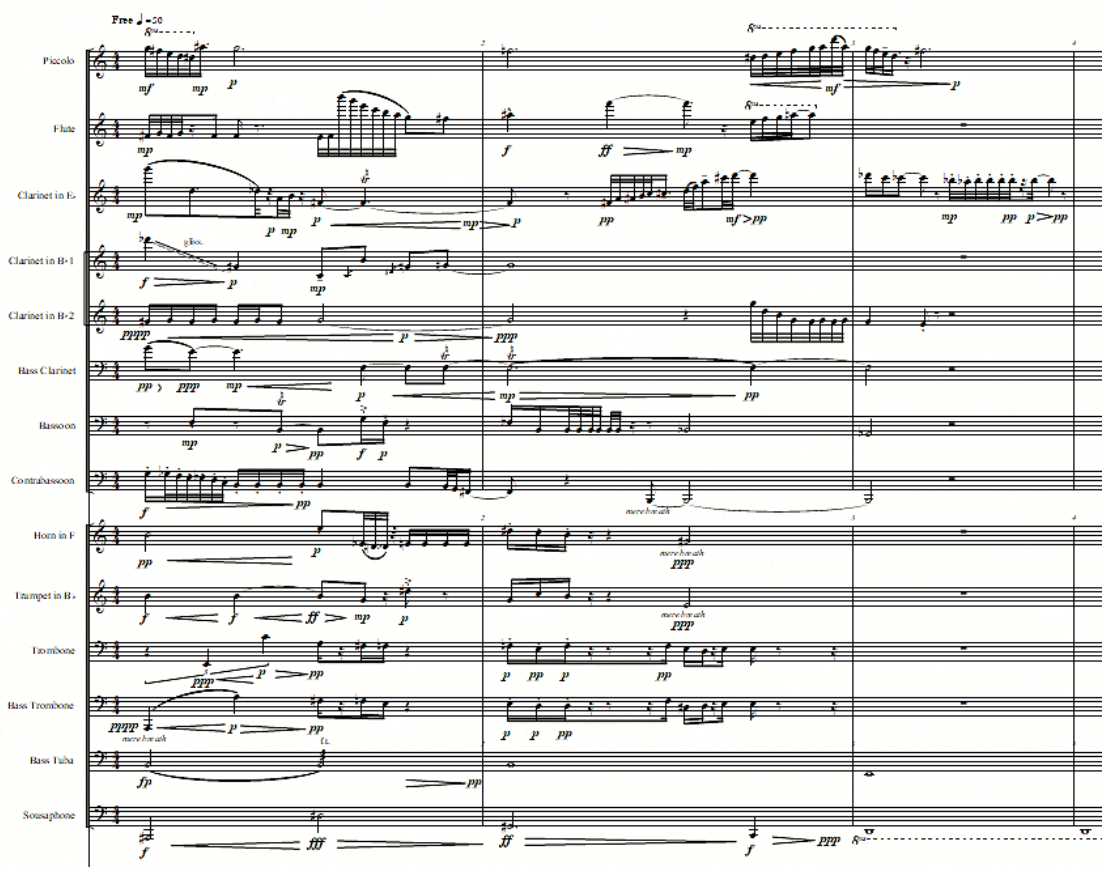


fig 4: *Folkestone Bandstand*, bars 25-26, further decorations, Grant Gover, 2019

Decorative elements are depicted at various other places, such as shown in *figure 5*; integrated into the baroque section, bars 40-48, this time with the glockenspiel adding some colour; a definite flurry in bars 55-56, which could also double for the sound of birds—there are many birds around the Leas overlooking the sea where the bandstand is situated, all sorts of gulls, together with birds flitting in and out of the hedgerows along the Leas visible in the background; bars 64-69 include other decorative and bird evocations. There are other such interspersed sounds: even the next bars 70-82 could be taken as a pair of cooing birds, perhaps love birds since the Leas can be a place for promenading, family entertainment, such as taking in the performing band sounds from deckchairs in the Folkestone sun (Folkestone has a high percentage of sun hours). In fact the sounds in these bars could also be construed as

snatches of band sound drifting on the wind. The baroque section, whilst being a slight personal indulgence, is hoped to capture something of the bygone eras that brass bands have been known to evince and something of the historical nature of Folkestone.

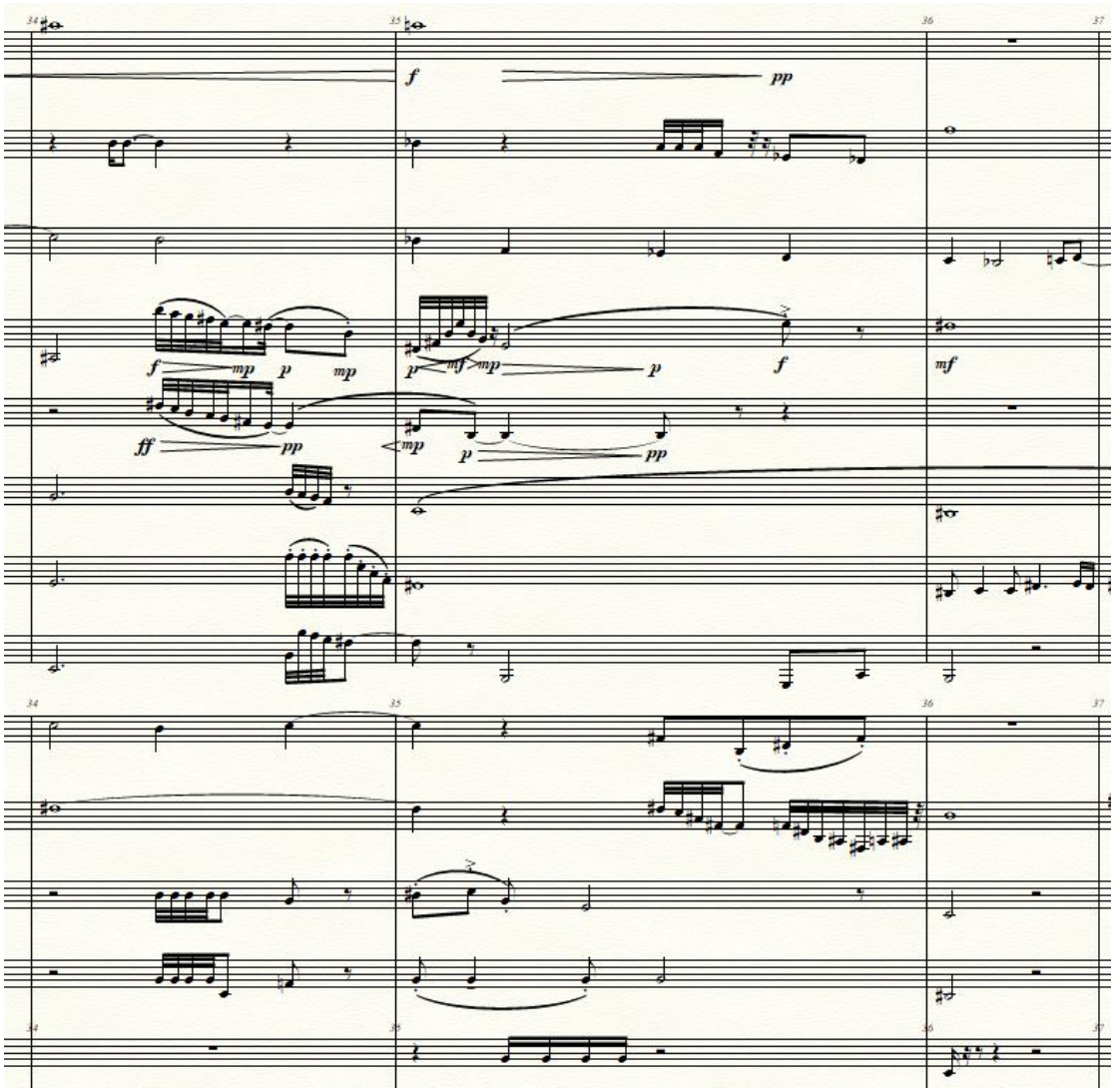


fig 5: *Folkestone Bandstand*, bars 34-36, woodwind decorations, Grant Gover, 2019

The whole can be taken as a deconstructing grand piece for brass band. Some of the instruments can be found in typical brass bands. In the mode of working to set parameters, as can be seen on the spreadsheet below (*figures 6-9)*, the instruments

were restricted to one source: *orchestralibrary.com*. Similarly, notes were restricted to an arbitrary pitch range from C1 to C8 on the vertical Y~Y axis as matched with instruments from the orchestral library, and then matched via orthogonal lines at right angles to the straight-on view, one reason why this view was chosen. The whole is thus an evocation of an event, or events, real and conceptual, as well as the actual bandstand in its setting.

The piece is linear, a series of events and depictions that sometimes overlap, evolving from left to right along the X~X time axis.

The spreadsheet, with its image and notes, is taken as the 'prime' score. This is then converted, or translated, into a notated score, sections of which have already been seen. Further illustrative examples will be provided.

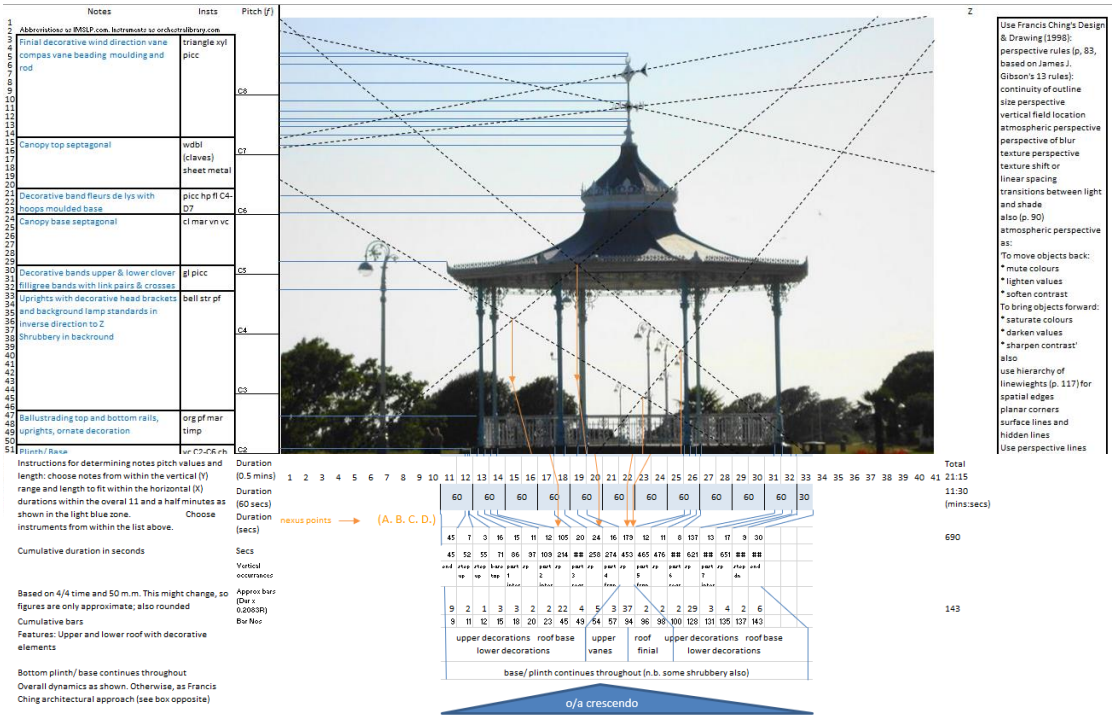


fig 6: *Folkestone Bandstand*, Prime Score, Grant Gover, 2019

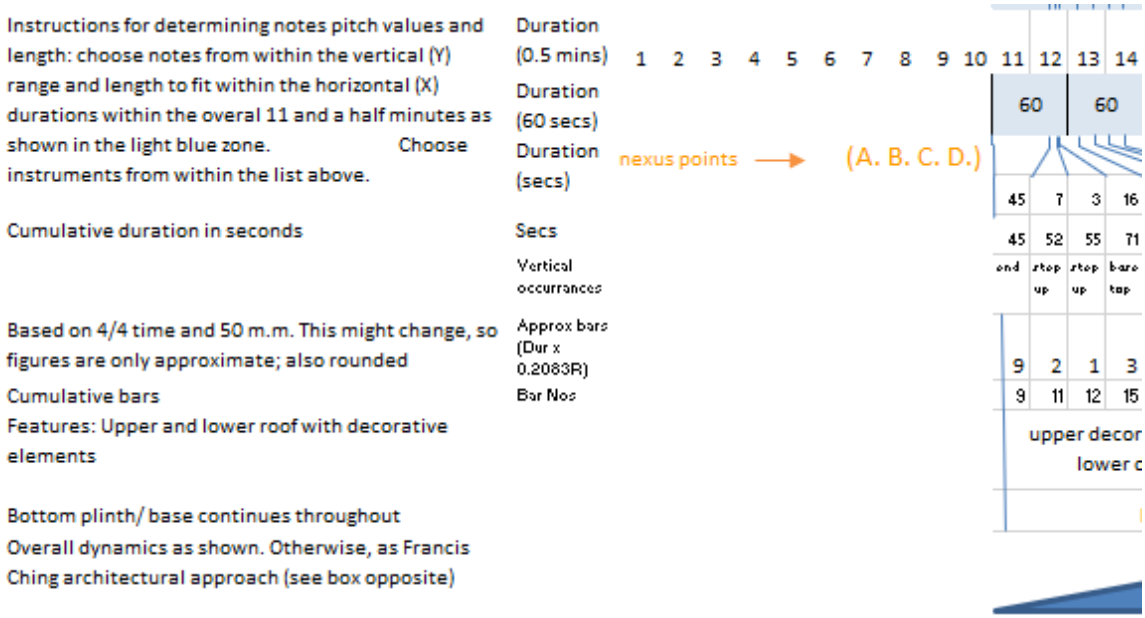


fig 7: *Folkestone Bandstand*, Composition Instructions details, Grant Gover, 2019

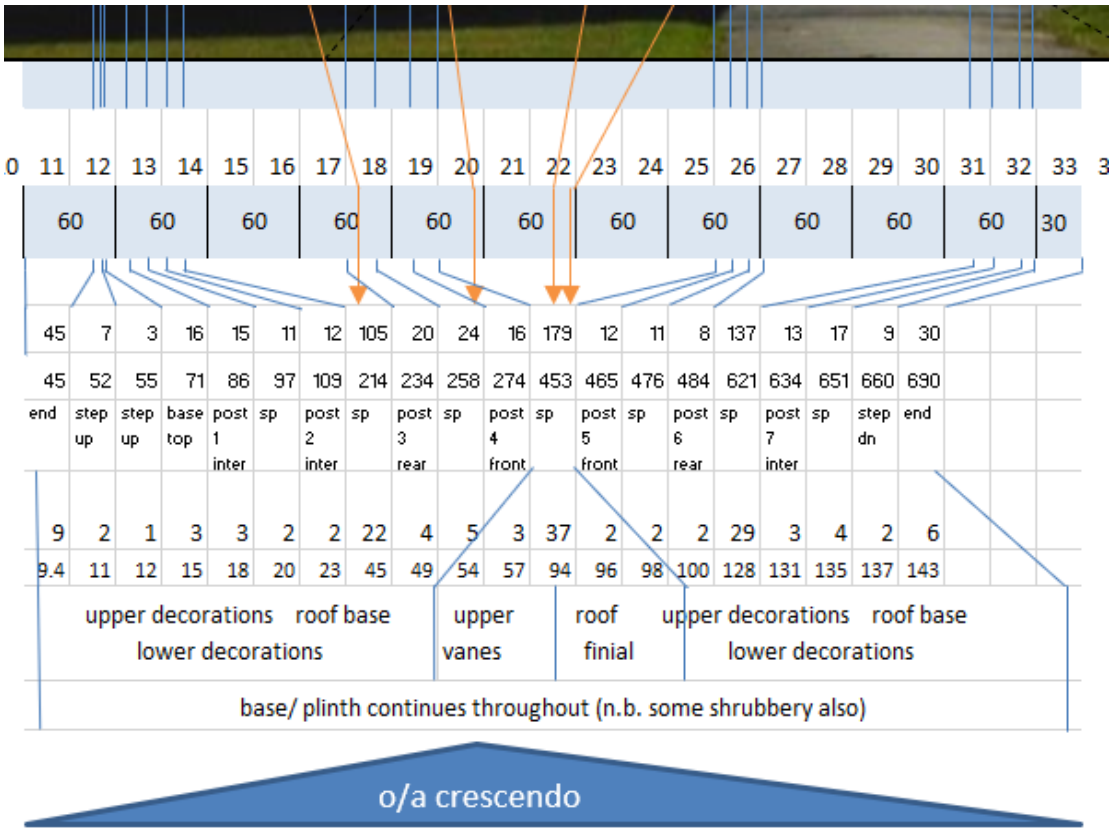


fig 8: *Folkestone Bandstand*, Spreadsheet detail, Grant Gover, 2019

This provides the main structure of the piece, the overall shape dynamically, showing the positions of the seven posts, four nexus points (shown in orange) derived from intersections of perspective and diagonal lines, the position of the central upper canopy and other information to be taken into account, including decorative elements (it was never intended to show these details consistently throughout, rather as suggested architectural elements on a drawing); the consistent base, or plinth, which due to the chosen image with dark sombre tones and vanishing point below the image foot allowed for a quiet understated, at times, ever-present foundation, occasionally allowing more dramatic tones to show through and underpin the more showy elements going on above. Near the beginning when the base is first heard, bar 4 onwards, the sound is sad. Without imitating, and trying all the time to be individualistic, it is admitted that the long slow *Adagietto* from Mahler's fifth symphony came to mind. It is intended here as a mix between expressing the reality of materials, the fabric of the universe as entailed in the Folkestone bandstand, as well as an outright romantic interpretation which without the universe is colourless and grey; the *yin* and *yang*, the bitter-sweet.

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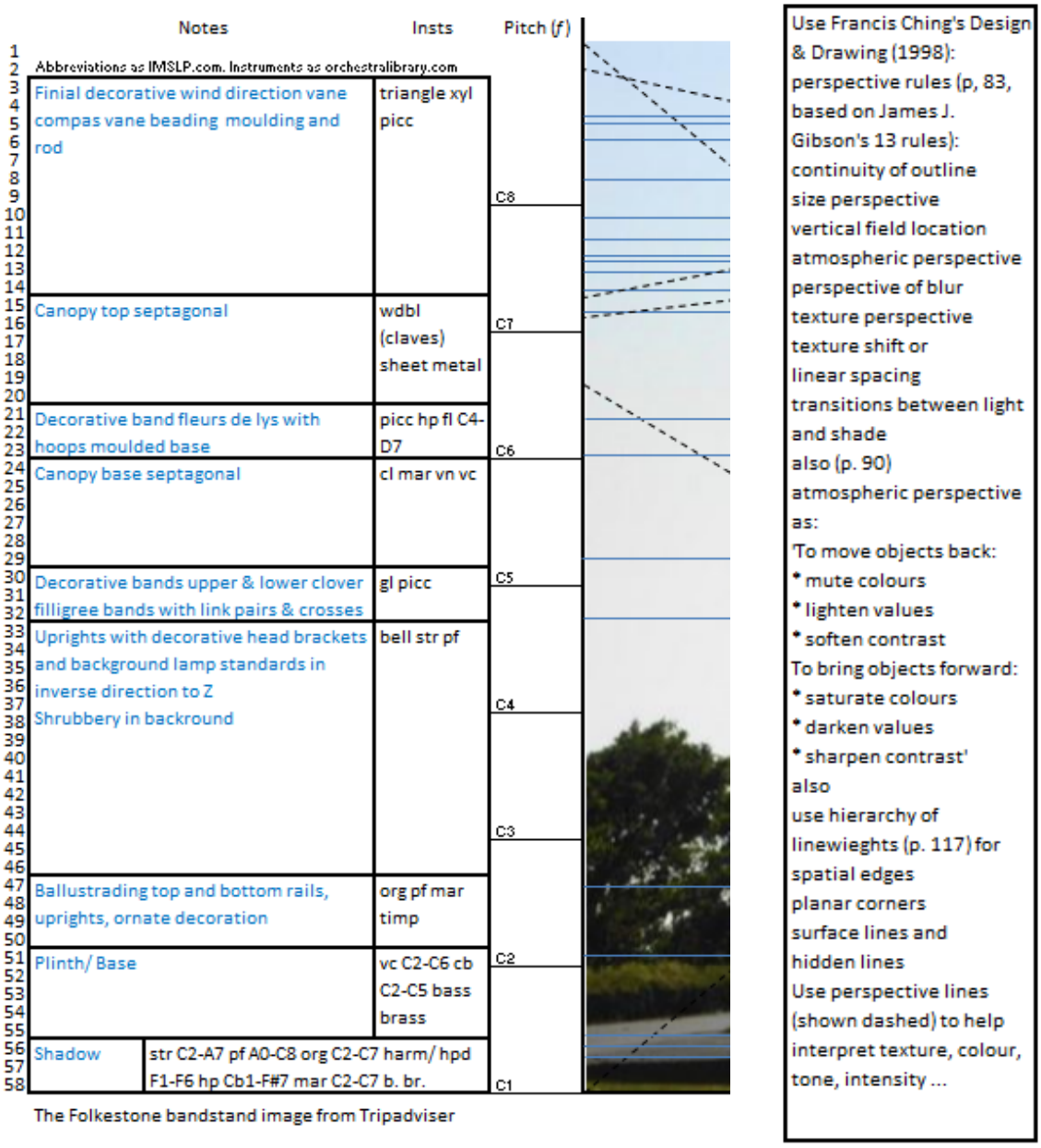

fig 9: *Folkestone Bandstand*, side bars to main image, instrument and pitch parameters on left and architectural annotations on right, Grant Gover 2019

Tonality~atonality mid-term review

An obvious element of tonality runs through the *Folkestone Bandstand*, like a binding thread. There are elements of atonality too, which will be discussed shortly. It is not as atomised as perhaps is the music of Steven Daverson as cited in his *A Survivor's Guide to Hostile Structures: The Inception, The Enforcement, and Confrontation of a Musical Dogma* (2014). However, as compared with *A Walk Around Oxford Late at*

Night, the stratagems of using spreadsheet data and predefined parameters has moved the goalposts to a certain extent away from a fully controlled compositional method. This was partly achieved in *The Life of Zaha Hadid* by utilising parameters defined electronically, yet with some human decision-making and liberal choice of material.

There are two versions of *Folkestone Bandstand*. So far, examples have been taken from the first version. Where the tonality of the finished piece was obvious, I intended to take a leaf out of Steven Daverson's methodology and use a multiplier, to make notes less consonant, to spread them out, as he does to obtain a cache of different notes from an initial set. However, when I came to apply this technique, it did not feel right. I realised that to obtain a more dispassionate sound I should write a different piece altogether. Instead I opted to listen to the piece and decide where I could add notes to reduce the tonal impact to some degree. This was a compromise, because whilst I was still looking for a means of writing to translate architecture into music in a modernistic way, I realise that I did not want to eradicate what had been produced. It fitted the brief that I had set myself. The sound is therefore cleaner and fresher in the first version, but the second version is used in the sound file creation, since the tonality is muddied slightly and various other modifications have been made to disguise the sugary sweetness in parts—and to embellish in other parts too. The general tenor of the sound is unaltered, so it may be difficult for some to hear the differences.

Comparing the first three bars,

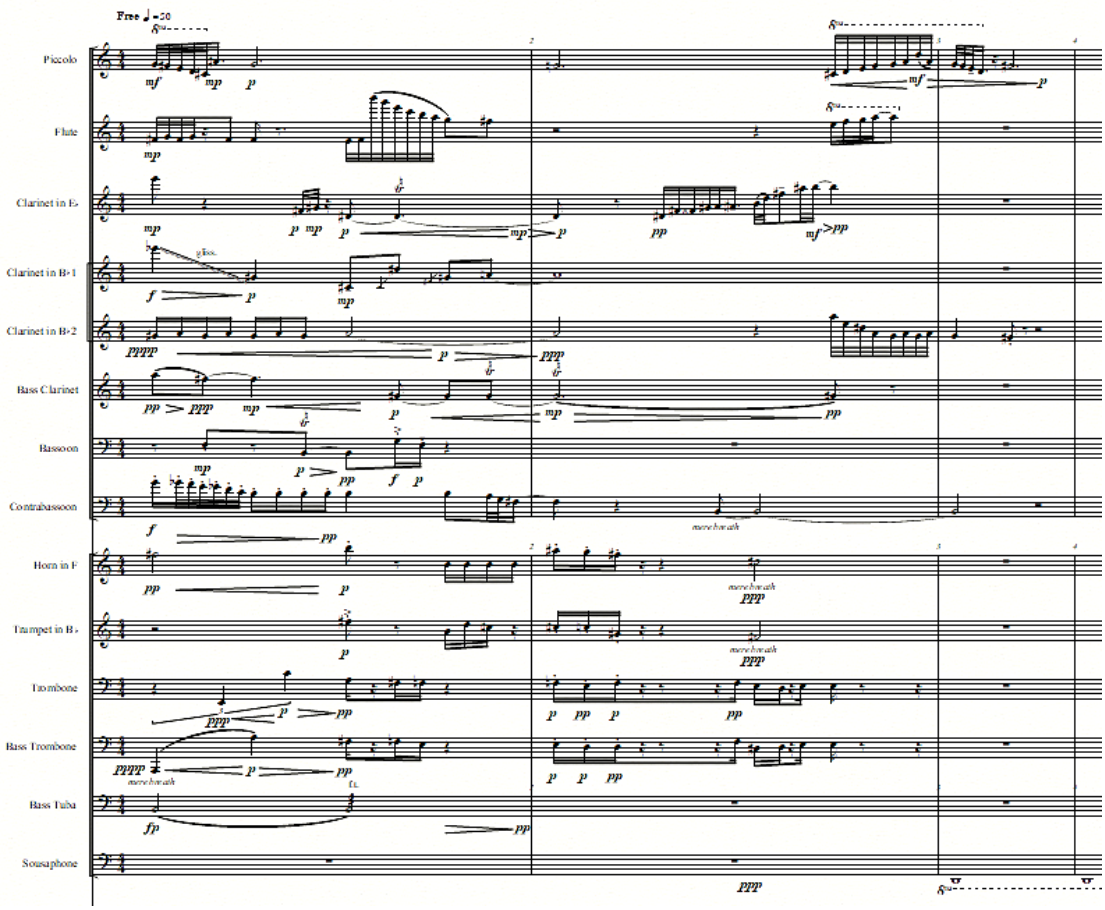

fig 10: *Folkestone Bandstand*, first 3 bars, first version, Grant Gover 2019 (upper parts, because lower parts remain unchanged)

Initially, the lower sound was designed to be minimal. Hence, the instruction: 'mere breath' for the contra bassoon, horn in F, trumpet in Bb and bass trombone (for the full score please refer to the appendix). The sousaphone was to be held back. The upper sounds of the piccolo, flute and clarinet in Eb, in particular, are clearly delineated. The first clarinet in Bb assists with a glissando starting high at Db going down to G#. The trombone in C is kept as quiet as possible. The contra bassoon adds a bit of punch, a bit of its woodiness, staccato, starting at *f* but rapidly quieting down to *pp*. The bass tuba with its soft tones adds the merest punch, supporting the contra bassoon, with *fp*, hence, merely adding an initial surge then quietening down straightaway, ending on *pp*, or as low as the tuba can physically play. The sound is clean, yet clearly tonal. So, in version 2,

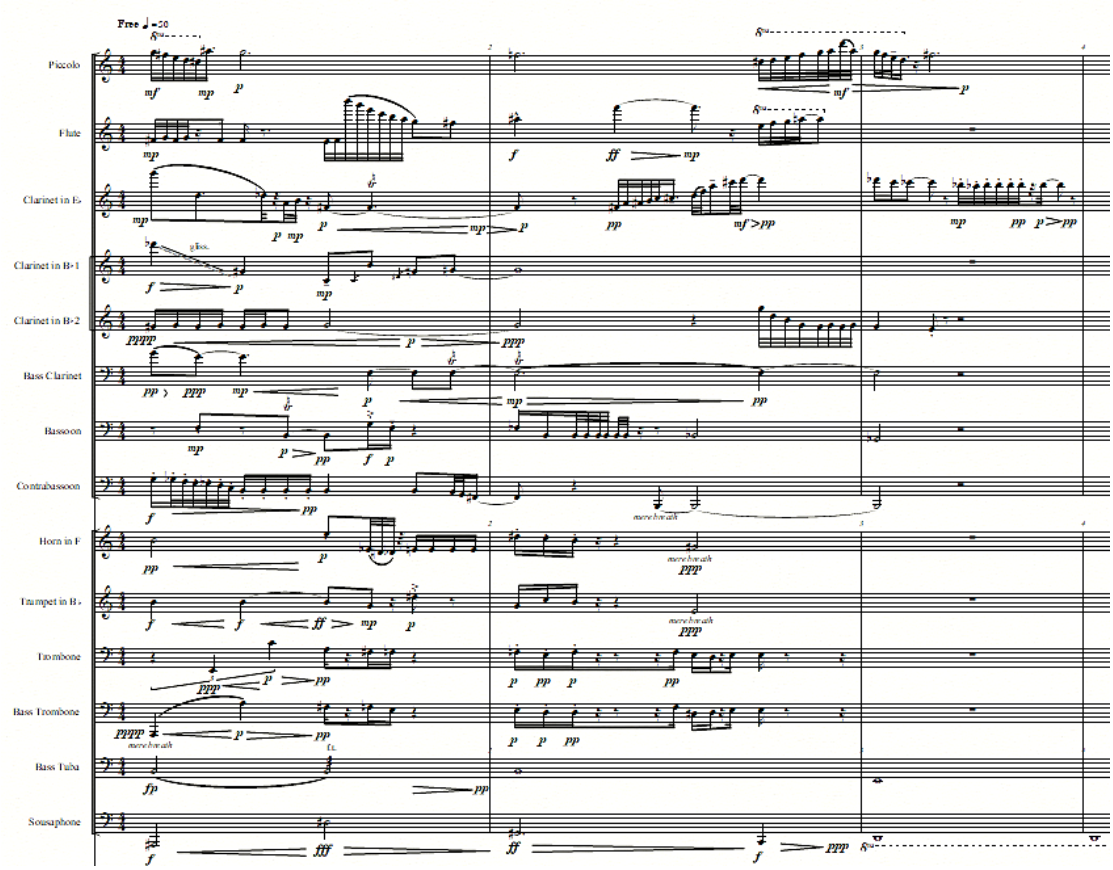

fig 11: *Folkestone Bandstand*, first 3 bars, second version, Grant Gover, 2019 (upper parts)

The clarinet in Eb, changes from just coming down from the high G to the dominant F# via the tonic B, and that via a short note below that as an appoggiatura or acciaccatura depending on how quickly one sees the note. Bearing in mind the slow speed of 50 m.m. for a crotchet beat, the A does have some effect of adding some punch. But with the addition of the D, then Db in the same way, even more punch is added and the key centre is slightly richer. Similarly, the horn adds in three little rapid notes, Eb, D and Db, which slightly muddy the waters. Only slightly, but there is a discernible taking the edge off the crispness. The trumpet was initially held back due to its strident sound, but in the second version was added in from the word go, and in

f, swelling to *fff*, then down to *ff* and then down to *mp*, which is a trope frequently occurring throughout: low or quite low, to high, then falling to a different low than as started out. This way adds life, motion, an almost interrupted cadence, dynamically, leading to expecting more. The trumpet reinforces the B tonic sound, falls to the G, echoing the Eb clarinet's first note, and then sounds a D# as against the E natural of the horn before it falls to its sort of triplet as described above, Eb/D/Db which then rises to E natural. This sort of false relation echoes what is happening already with the two trombones in bar 1 of F sounding against F# and F natural sounding against E. Similarly to the trumpet, the sousaphone is brought in from the off, and at full volume. Following the sousaphone's notes over the first few bars and sounding them against other notes in other parts yields an interesting modern chord characterisation, an insouciance from the word go: C#, D#, G#, C, D. There could be Baug9 leading to C#9, or looking at: B, C#, D#, G, C and D together could be D#Maj13#5add(m7). In a way these chord labels are immaterial. The fact is that the sousaphone messes the tonality up and adds an air of mystery connected with the foundation, the bass or plinth. The timpani which had a very subtle effect in the first version is still there at the same volume and therefore drowned out. Likewise, the temple blocks. The glockenspiel can just be heard and assists the piccolos in bringing out higher tones of the decorations. A performance practice would help where adjustments in balance and volume could be made.

The marimba plays around the note B and by wandering around it adds some spice. The low percussive sound echoes the higher more shrill notes and adds a bit of exotic rhythm, somehow being a counterpart to the decorative patterning.

The harp and piano add a mix of melody and atonality from the outset, where all the tones of the first encountered decorative elements sound together like tones of various bells tolling at the same time.

The strings are picking up the B fundamental note from the outset. In fact in minor key, but this is ambiguous when taken as a whole across the instruments. This reinforces the harp/ piano mixed sound. They continue to play around the note B similar to the marimba.

In this way it can be seen that a certain amount of atonality was there from the beginning in the first version, and the second version merely adds a bit more colour dilution.

There are other dilutions in the second version, and embellishments. Since the sound volume has increased then where the mix was kept subtle it was felt that in the second version the bassoon could add to the rhythmic feel, the regular dispersions of the decorative features, for instance. So, in bar 2 a small rhythmic figure starting on Eb, mainly centered on B, then Bb, descends in bar 3 to Gb. This Gb sounds against a low B in the contra bassoon, which would be enharmonically in B Major, but anyway the ‘mere breath’ marking of the contra bassoon could almost make this irrelevant. In some ways the first version captures more of the gentle subtle introduction to the phenomenon of the bandstand and rendering it in a musical language as translated from the image using the external mechanisms of someone else’s photograph, the website for instruments and all the other parameters given. However, it is felt that at least an effort has been made to tone down the overt musicality, to smudge it into a blended sound, more mysterious than at first, bespeaking the dark tones of the image and the strange thing of translating the bandstand into music.

To complete a summary of significant changes in the second version, firstly, at the end of the section just analysed, in bar 3, the Eb clarinet adds a figure of Db, C, Cb (of course enharmonic with B), then a sort of staccato trill on Bb and Ab. In practice the Cb would probably be changed to the B but it is believed that small inflections of sound are obtainable according to how one blows notes and that there can be a difference of a few cents. This is probably specious and within the sound of a full orchestra is probably immaterial, however as a composer liking to think in microtonal differences it satisfies the flow of notes and gives an indication of the compositional thinking. Of course with stringed instruments this sort of nuance can be achieved, as written in the following string section of Db against C# (Again in practice if players found it easier to play the same note then the miniscule difference could be sacrificed). This Eb clarinet figure is quite prominent and changes the character of the music locally at this point. It is evoking the combination of both decorative elements and a bird singing and works well in contrasting a last little shout-out before the quietude of the strings takes over and the ensuing 'engine' sound that has permeated its way from earlier pieces into evoking something of the bass section of the bandstand.

Continuing in the mode of adding to the sound as a whole to take the edge off a sweet tonality, to add more mystery and ambiguity, bars 6-8 in the piano bass fit this role. Without going through every instance, in general terms more 'middle' sound has been added (colloquially called 'stomach') of the contra bassoon and horn ,for instance. Then a notable addition is the addition of strings in the second version to support the woodwind and brass in bars 122-135. In the first version the sound is cleaner. This version is more of a crowd pleaser. It does add more weight and makes more of a denouement and the woodwind have had their trio like day in bars 110-121

complete with cadence. In fact there are cadences throughout the piece which of course supports the tonal aspect. In wishing to re-write the piece and add in dissonant touches I could not bring myself to change it completely, so the tonality aspect simply had to stay. There is sufficient evidence of atonality in the piece as has been partly examined. This reinforced my idea that in order to change the character to a totally modernistic piece, rather than quasi-modernistic, a completely different piece would be needed. This can be a challenge for the future and hopefully bring this into this research, demonstrating further a wide spread of means of composing and making music to evoke architecture.

The final section is left untouched, which reverts to the simplistic touch and contrasts perhaps well with the previous section where the strings have been added. The final sound of several gongs seems fitting to leave all the indeterminacy of percussion instruments trailing off into the wind. There have been several percussion instruments throughout and this too has evolved from earlier pieces, especially *Study I Events*, where the philosophy of including events into architecture was examined in a short rather Dadaistic manner—it too ended with a gong sound, if abruptly, which for me spoke of Dadaism. Here the sound is fuller, yet there is a sort of suddenness which ends the piece with an exultant surprise.

Finally, there could be much more to say about *Folkestone Bandstand*, but suffice it to make just one more salient point and that is as regards musical ideas evolving through this research: the bars 87-107, and strictly 87-circa97, evocation of the literal high point of the piece, the upper canopy, has resonances of a previous experimental piece carried out during this research, when after discussion it was agreed that an object was classified as of architecture. This piece is called *Glass*. A photo of a glass was superimposed upon a written score and sounded as if the glass

itself was resonating. This was in a similar form to the canopy crescendo, rising to a central high point, quietening down to the rim of the glass. Afterwards, it was experimented with in Audacity to add further harmonics. This to me was sounded as if it had further examined the constituency of the glass. These two pieces will be included in the portfolio of sound and music that will accompany this research, as will the *Study I Events*, in order to show evolution of ideas to substantiate choices made in evoking architecture musically.

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